

1. A method of managing mobility of a mobile station across an 802.xx wireless local area network (WLAN) and a wireless wide area network (WWAN) in which a mobile switching center (MSC) has been provisioned to act as a serving MSC for the WLAN, comprising:

- (a) the mobile station detecting the RF energy of the WLAN and validating its ability to be a member of the WLAN;
- (b) in response to step (a), the mobile station issuing a registration request to the serving MSC for the WLAN;
- (c) in response to step (b), the serving MSC for the WLAN causing the WWAN to recognize that the mobile station is registered with the serving MSC for the WLAN and that the mobile station is no longer served by a prior MSC;
- (d) the mobile station communicating to entities outside of the WLAN by communicating with the WLAN via a WLAN protocol and the WLAN communicating with the WWAN via the serving MSC for the WLAN.

2. The method of claim 1 wherein the mobile station issues a registration request by sending a SIP Register message on the WLAN via a WLAN air interface protocol to request registration therein, and the WLAN communicates the registration request to the MSC serving the WLAN.

3. The method of claim 1 further including the MSC serving the WLAN sending a de-registration request to an MSC that previously served the mobile station.

4. The method of claim 1 wherein the MSC serving the WLAN sends a registration notification message to an HLR to update the WWAN with location information of the mobile station, and wherein the HLR communicates with a prior MSC to cancel service thereat of the mobile station,

5. The method of claim 1 wherein the MSC serving the WLAN sends an update location message to an HLR to update the WWAN with location information of the mobile station, and wherein the HLR communicates with a prior MSC to cancel service thereat of the mobile station, and wherein the HLR communicates with the MSC serving the WLAN to insert thereat the mobile station as a subscriber for service.

6. The method of claim 1 wherein a mobile station detects the RF energy of the WLAN and validates its ability to be a member of the WLAN while the mobile station is participating in a call using a WWAN air interface protocol and in response thereto

sending a message to a source MSC that is servicing the call that a handoff is desired;

the source MSC analyzing the message, establishing itself as an anchor MSC, and establishing communication channels with a target MSC servicing the detected WLAN;

the mobile station beginning communication with the WLAN via a WLAN air interface;

the WLAN forwarding messages to the target MSC serving the WLAN via IP communication; and

the target MSC relaying those communication to the anchor MSC.

7. The method of claim 6 wherein the mobile stations sends via a WLAN air interface protocol a handoff request message as an overloaded SIP command and the WLAN communicates the handoff request message to the target MSC.

8. The method of claim 1 further including

a mobile station determining that it should communicate via a WWAN air interface protocol and not via a WLAN air interface protocol;

the mobile station issuing a registration request to the WWAN via a base station controller (BSC) and MSC corresponding to a location in which the mobile station resides;

the corresponding MSC causing the WWAN to recognize that the mobile station is registered with the corresponding MSC and that the mobile station is no longer served by a prior MSC which served the mobile station when it was communicating according to a WLAN air interface protocol.

9. The method of claim 8 wherein a mobile station determines that it should communicate according to a WWAN air interface protocol while the mobile station is participating in a call under a WLAN air interface protocol and in response thereto

    sending a message to a source MSC that is servicing the call that a handoff is desired;

    the source MSC analyzing the message, establishing itself as an anchor MSC, and establishing communication channels with a target MSC servicing a geographic WWAN area in which the mobile station resides;

    the mobile station beginning communication with the WWAN and the target MSC relaying those communication to the anchor MSC.

10. The method of claim 9 wherein the mobile station informs the MSC serving the WLAN of the cell ids of the WWAN geographic area, and wherein the source MSC uses the cell ids information to establish communication channels with the target MSC.

11. The method of claim 10 wherein the mobile station uses an overloaded SIP Info message to communicate the cell id information to the source MSC.

12. The method of claim 8 wherein a mobile station determines that it should communicate according to a WWAN air interface protocol while the mobile station is participating in a call under a WLAN air interface protocol and in response thereto

    sending a message to a source MSC to request a temporary local directory number (TLDN)

    the source MSC providing a TLDN to the mobile station;

    the source MSC causing a called party of the call to be placed on hold and the mobile station requests a call to be made using the TLDN as a called party;

    the WWAN causing call connections to be made connecting the mobile station with the TLDN to resume the call.

13. A wireless communication system, including

    a wireless local area network (WLAN) including logic to communicate according to a WLAN air interface protocol;

    a wireless wide area network (WWAN) including logic to communicate according to a WWAN air interface protocol, the WWAN including at least one MSC for serving the WLAN and in IP communication therewith;

    a mobile station including logic to communicate according to the WLAN air interface protocol, logic to communicate according to the WWAN air interface protocol, and logic to communicate mobility management messages to the WLAN as overloaded SIP messages for forwarding to the at least one MSC.